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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/898,437	07/03/2001	Robert Harvey Moffett	CH2814 US NA	1926

23906 7590 12/05/2002

E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
BARLEY MILL PLAZA 25/1128  
4417 LANCASTER PIKE  
WILMINGTON, DE 19805

EXAMINER

HRUSKOCI, PETER A

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 12/05/2002

13

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 13

Application Number: 09/898,437

Filing Date: 07/03/01

Appellant(s): Moffett

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DEC 04 2002  
GROUP 1700

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Lucas K. Shay

For Appellant

**EXAMINER'S ANSWER**

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This is in response to the appeal brief filed 10/11/02.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

***(2) Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

***(3) Status of Claims***

The statement of the status of the claims contained in the brief is correct.

***(4) Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

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**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 1, 3-5, 7-14, and 23-24, 2-4 and 6-14, 25-33, 15-16, 19, and 22-24, 17-18 and 20-22, and 35-40 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

4,566,975	Allgulin	1-1986
5,597,490	Chung et al.	1-1997
5,269,939	Laurent et al.	12-1993
4,097,377	Ayukawa	6-1978
4,765,908	Monick et al.	8-1988

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***(10) Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-40 are rejected under 35 U.S.C. 103. This rejection is set forth in prior Office Action, Paper No. 6.

***(11) Response to Argument***

Appellant argues on pages 4 and 5 of the Brief that there is no suggestion in Allgulin to add an anionic inorganic colloid, and organic polymer, cationic organic polymer or anionic organic polymer as recited in the instant claims. Appellant is directed to col. 4 lines 59-63 of Allgulin which suggests the addition of a flocculating agent to the solution containing the precipitate to aid in separating a flocculated precipitate from the solution. It is submitted that Chung et al. was used to teach that it is known in the art to add cationic and anionic organic polymer flocculants, anionic inorganic colloids, and metal salts, to an aqueous stream derived from food processing, to aid in coagulating and flocculating precipitated solids from the stream.

Appellant argues on pages 4, 5, 10 and 11 of the Brief that Allgulin teaches away from the claimed invention because the addition of metal ions in Allgulin causes complete precipitation, and no additional material such as an inorganic anionic colloid or organic polymer should be added. It is submitted that the complete precipitation of phosphorus in Allgulin fails to exclude the addition of other materials such as coagulants and flocculants. It is further submitted that teaching in Allgulin of adding a flocculating agent would suggest to one skilled in the art that the flocculating

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agents of Chung et al., including inorganic anionic colloids such as the clays and bentonite, and cationic and anionic organic polymers could be added to aid in separating a flocculated precipitate.

Appellant argues on pages 6 and 7 of the Brief that Chung et al. is non-analogous art because this reference fails to disclose or suggest that the process can be used for removing or recovering phosphorus from a waste stream. It is noted that Allgulin was used to teach the removal of phosphorus from an aqueous stream by adjusting the pH with a calcium compound, adding metal ions such as zinc and manganese as recited in the instant claims on appeal. It is submitted that both Allgulin and Chung et al. are drawn to the analogous art of water purification. It is further noted that the food processing wastes of Chung et al. fail to exclude aqueous streams from food processing comprising phosphorus as recited in claims 2 and 17 on appeal, and would include at least an infinitesimal amount of phosphorus as in the instant process.

Appellant alleges on pages 6-8 of the Brief that the use of iron, aluminum, and polymers in the prior art such Allgulin and Chung et al. causes problems of rancidity and toxicity, which limit the use of the flocculated mass as a fertilizer or animal supplement. It is noted that these uses are not recited in the instant claims on appeal. It is submitted that the coagulants and polymers disclosed in Chung et al. are patentably indistinguishable from the organic polymers recited in the instant claims on appeal. Furthermore, appellant has not supplied sufficient factual evidence to support the above allegation.

Appellant argues on pages 8-10 of the Brief that Chung et al. do not disclose or suggest the use of an anionic colloid and cationic polyacrylamide. It is submitted that the clays and bentonite

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disclosed in Chung et al. fail to exclude anionic colloids. It is noted that clays and bentonite are included in the anionic colloids disclosed on page 9 lines 17-25 of the instant specification. It is further submitted that the terms coagulation and flocculation are used interchangeably in the art of liquid purification, and one skilled in the art would recognize that coagulation includes the neutralization of charges on colloidal matter, and flocculation includes agglomerating coagulated particles into flocs. It is submitted that the silicon containing copolymers of Chung et al. are cationic organic polymers which can include acrylamide, and which can be used in combination with the clay or bentonite. It is further submitted that Chung et al. teach the use of cationic polyacrylamide as a polymer that can be used with the silicon-containing copolymer. Appellant is directed to col. 4 lines 30-32 which teaches the use of cationic flocculants including DMAEM quats with AcAm. Appellant is further directed to Table 2 footnote 2 which shows that AcAm is an abbreviation for acrylamide.

Appellant argues on pages 11 and 12 of the Brief that the Moffett Declaration (Paper No. 5) demonstrates unexpected results of phosphorus and COD reduction, produced by using the process steps recited in the instant claims on appeal. The Declaration has been carefully considered but fails to overcome the above rejection. It is submitted that the specific test conditions utilized to produce the results shown in the Declaration are not commensurate with the scope of the instant claims on appeal. In the Final Rejection (Paper No. 6), it was noted that claims 1, 5, 25, and 34 properly written to include the use of specific amounts of metal ions, a silica microgel colloid and a

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cationic polyacrylamide flocculant, would be allowable, based on the Declaration. It is further noted that a reduction in COD is not recited in the instant claims on appeal.

Appellant argues on pages 12-15, and 20 of the Brief that the "consisting essentially of" language of claims 25-33 and 34-40 excludes required steps and materials disclosed in Allgulin, Chung et al., Ayukawa, and Monick et al., respectively, which would materially affect the basic and novel characteristics of claims 25 and 34. It is submitted that the exclusion of these steps and materials and their function, would have been *prima facie* obvious to one skilled in the art or water purification having the references before him, absent a sufficient showing of unexpected results.

Appellant argues on pages 16 and 17 of the Brief that once the precipitates or chelates are formed in Ayukawa, it is not apparently logical to suggest the need of adding an anionic colloid and organic polymer to the precipitates or chelates. It is submitted that the teachings of Monick et al. would suggest to one skilled in the art of water purification to add zirconium, in combination with flocculants such as polyacrylamide, anionic inorganic colloids such as bentonite, and metal salts, to an aqueous stream containing phosphate, to aid in coagulating, flocculating, and separating precipitated solids from the stream. Furthermore, appellant has not presented sufficient factual evidence to support the above argument.

Appellant argues on page 16 of the Brief that the zirconium described in Monick et al. is a catalyst that by definition does not combine with contaminants causing precipitation and flocculation. It is submitted that zirconium and polyelectrolytes utilized in Monick et al. appear to

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form a flocculated mass as in the instant process. Furthermore, applicant has not presented sufficient factual evidence to support the above argument.

Appellant alleges on pages 17-19 of the Brief that the instant Tables 9 and 10 of the specification and the Moffett Declaration (Paper No. 5) show the synergistic and unexpected results produced by the instant process. The above Tables and Declaration have been carefully considered but fail to overcome the final rejection. It is submitted that the specific test conditions utilized to produce the results shown in the Tables and Declaration are not commensurate with the scope of the instant claims on appeal. It is submitted that the test conditions include the treatment of specific wastewaters at a specific pH with a titanium and zirconium, and specific anionic colloids, and cationic and anionic polyacrylamides, to reduce COD and phosphorus. These test conditions are not recited in the instant claims on appeal.

Appellant's arguments concerning Laurent et al. on pages 12-14, 19 and 20 of the Brief are based on the propriety of Allgulin, Chung et al., Ayukawa, and Monick et al. These references are deemed properly applied for reasons stated above.

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For the above reasons advanced above and in the final rejection, the rejection of the claims on appeal is deemed proper and should be affirmed by the Board of Appeals.

Respectfully submitted,

*Peter A. Hruskoci*  
Peter A. Hruskoci

December 6, 2001

Conferees

*David Simmons*  
David Simmons

*Michael Ball*  
Michael Ball